

● Procedure 1: Inspection and treatment of connection parts before component hoisting

➤ Inspection of connecting reinforcement :

✓ Check the length of the reinforcement to be connected with a ruler ;

✓ **Detection of steel bar position deviation with formwork ;**

✓ The surface of reinforcement is clean without serious corrosion and paste.

➤ Cleaning of component connection surface

✓ The lower surface of grouting joint shall be clean and free from dirt ;

✓ In high temperature and dry season, the grouting surface of components shall be wetted, but no ponding shall be formed.

be careful : Especially the position control of the embedded



**Steel bar position
inspection template**



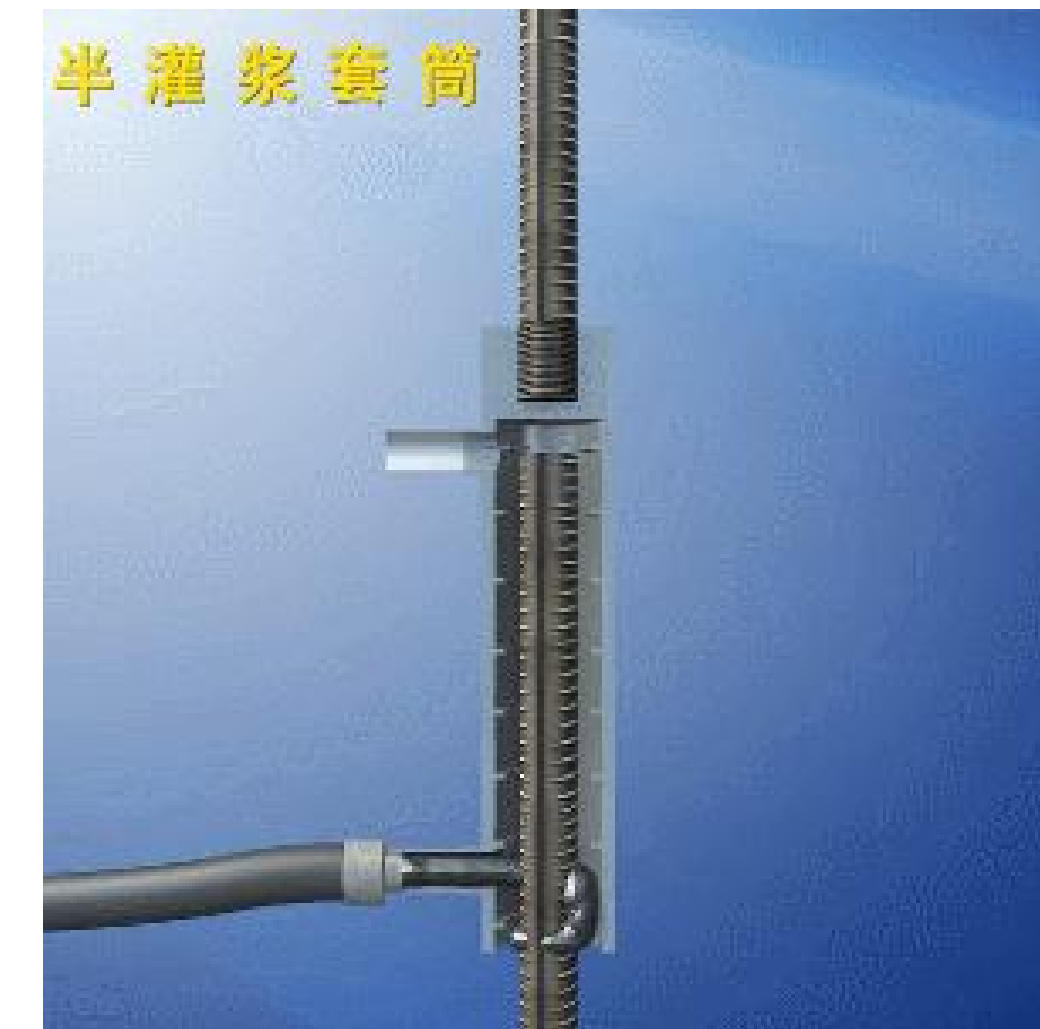
● Procedure 2: component hoisting and fixing

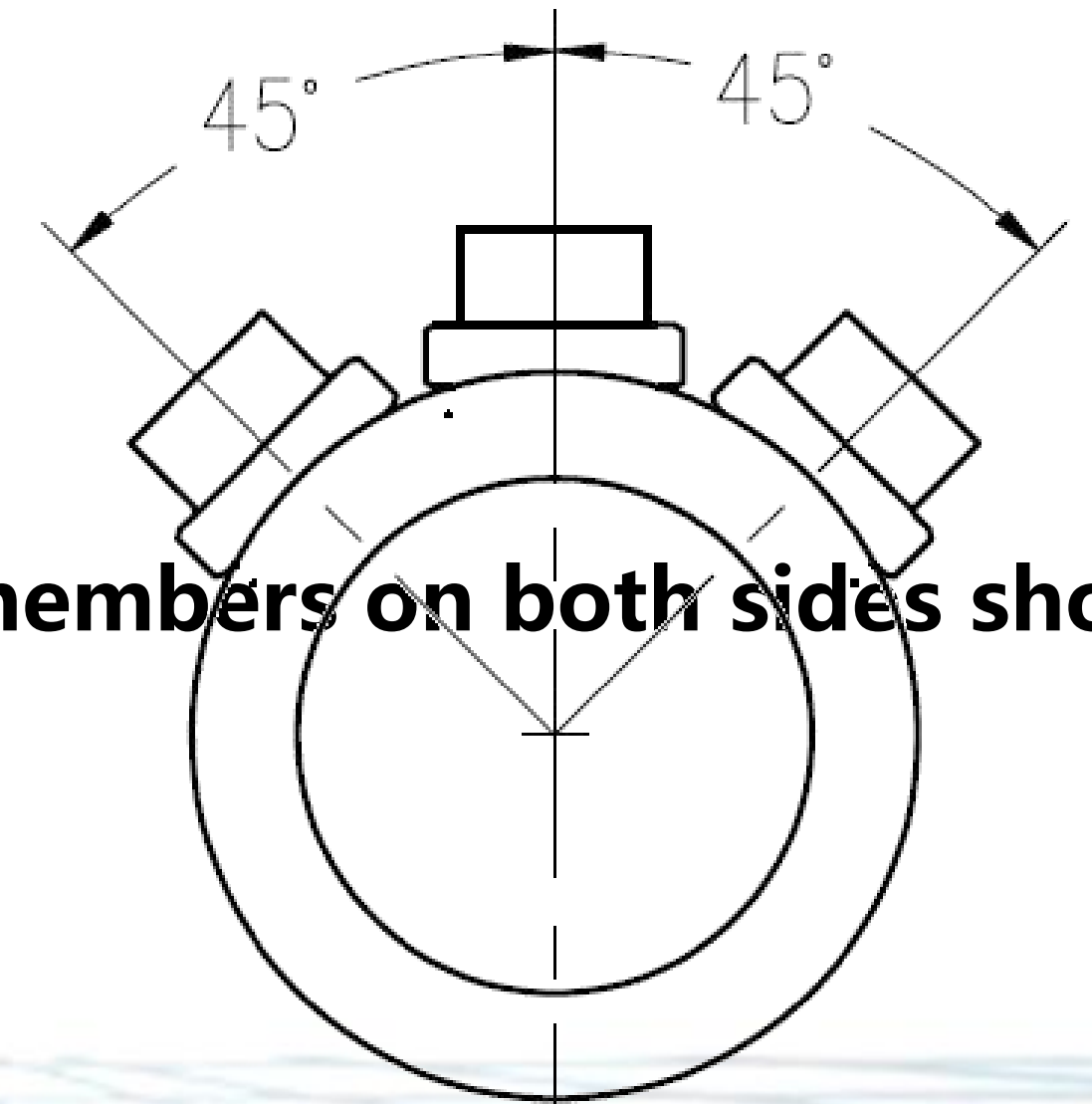
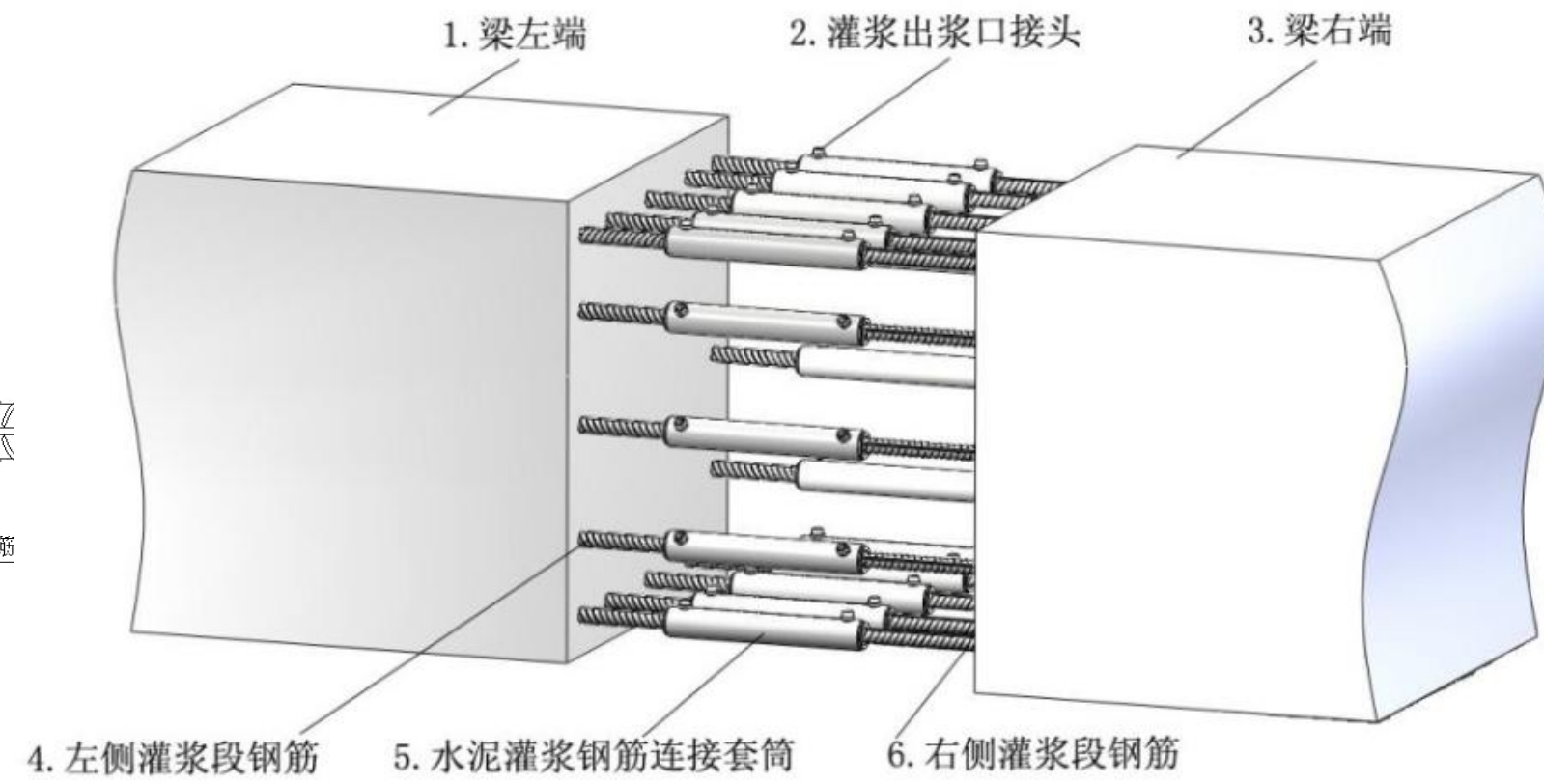
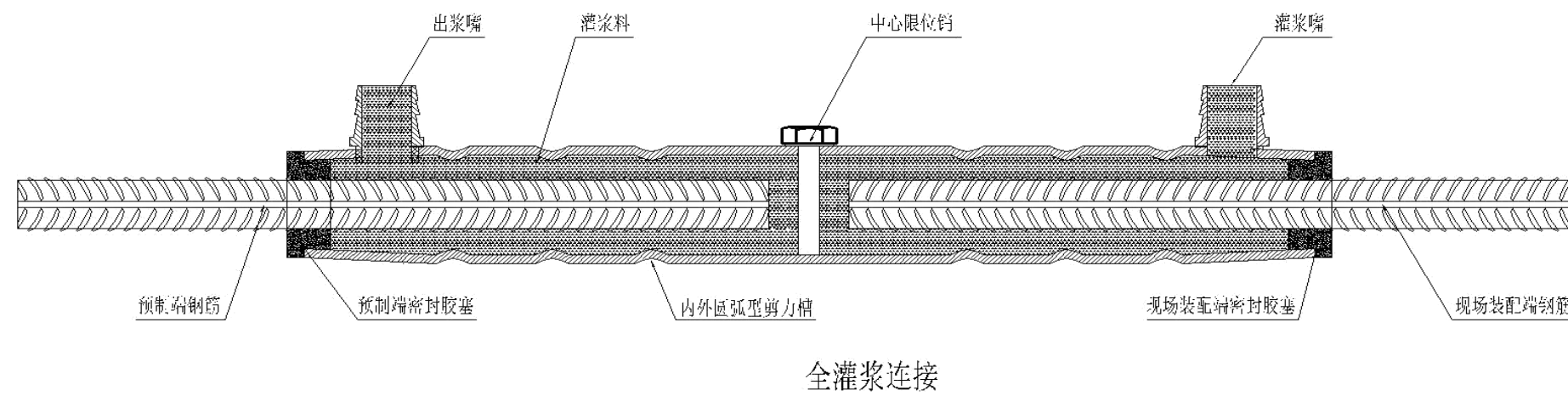
- The adjustable pad iron, about 20 mm thick, shall be placed on the installation foundation surface for leveling.
- During installation, each steel bar to be connected protruding from the lower member shall be inserted into the connection sleeve of the upper prefabricated member.
- Fix after adjusting the position and perpendicularity of the component.

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maintained during plugging. When the grouting pump (gun) is withdrawn from the grouting hole, it should also be blocked immediately ;

- ✓ It is strictly forbidden to grout from two or more places in the same warehouse (it will be gas filled).





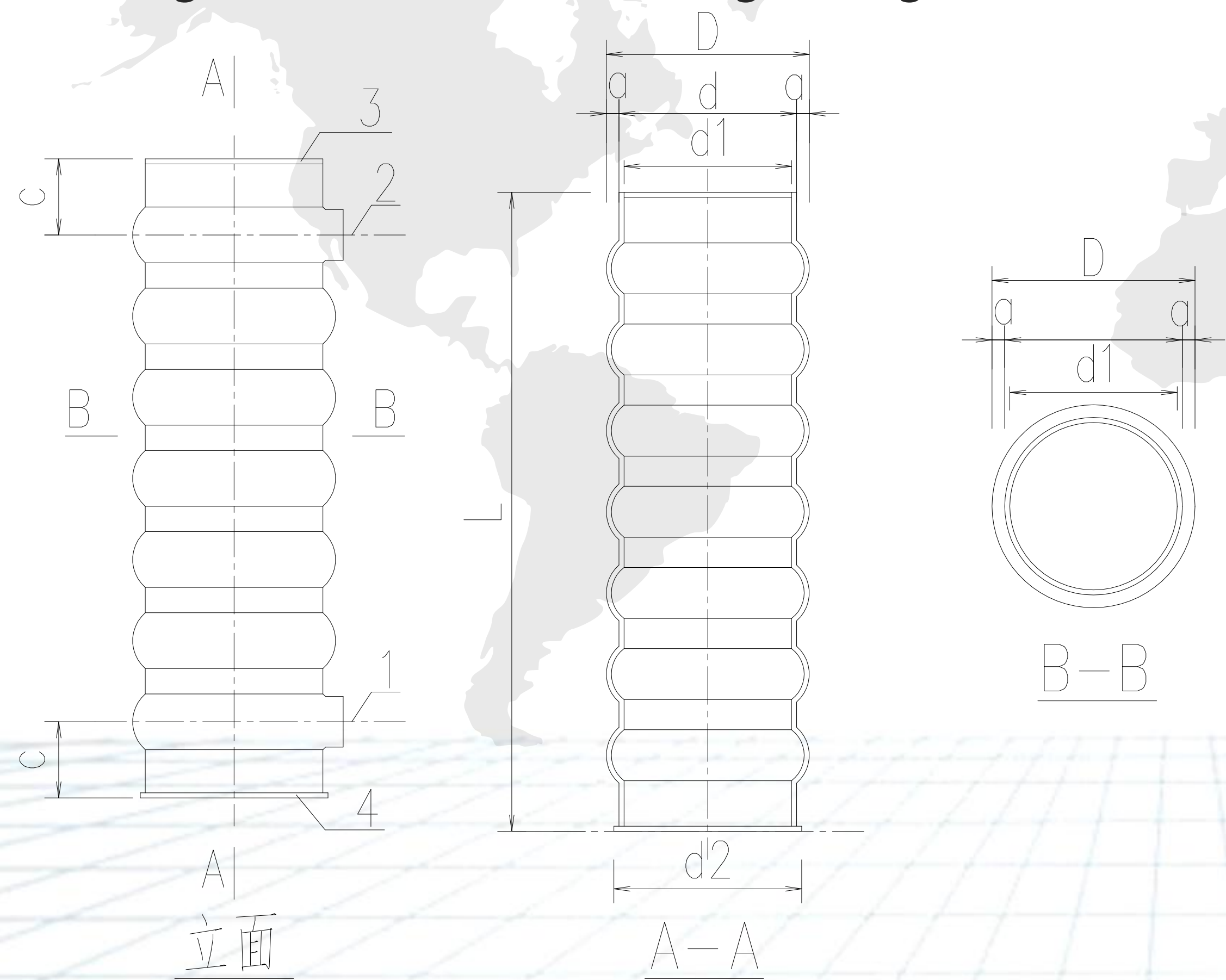
- **Procedure 4: sleeve in place**
- **After hoisting, check that the steel bars to be connected protruding from the members on both sides should be aligned, and the deviation should be no more than $\pm 3\text{mm}$;**
- **The distance between them is less than 30mm;**
- **If the deviation exceeds the standard, it needs to be handled;**
- **Move the sleeve to the middle of the two butt reinforcement according to the mark, and rotate the mouth of the grouting joint to the position within ± 45 degrees according to the convenience of operation. Check whether the sealing rings on both sides of the sleeve are normal. If there is any damage, it needs to be repaired in a reliable way (such as wrapping with hard adhesive tape);**
- **The stirrup shall be bound after the reinforcement is in place.**



- Procedure 5: grouting connection
- grouting
- Use a grouting gun to grout from one grouting joint of the sleeve to the sleeve until the slurry flows out from the grouting joint at the other end of the sleeve;
- After pouring, check whether there is slurry leakage at both ends and deal with it in time;
- Each joint is grouted one by one. The slurry should be used up within 20 ~ 30 minutes from the beginning of water mixing, so as to keep a certain operation emergency time as far as possible;
- Check the filling degree of the joint. After the grouting material solidifies, check the grouting port and discharge port. The upper surface of the solidified grouting material should be higher than the upper edge of the sleeve.

● **钢筋锚固用灌浆波纹管**

The steel bar is anchored in the embedded corrugated steel pipe in the concrete structure by the binding force of cement-based grouting material.



explain:

- 1 - grouting hole (or discharge hole);
- 2 - grouting hole (or grouting hole);

- **Appearance of grouted corrugated steel pipe for reinforcement anchorage**

appearance:

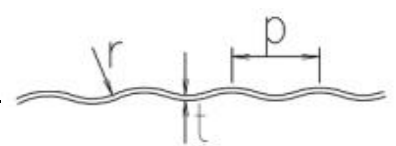
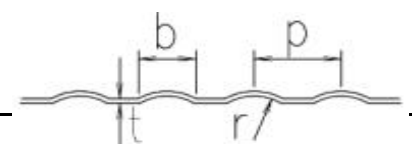
There shall be no cracks or other defects affecting the connection performance on the surface of the machined grouting corrugated steel pipe, and there shall be no sharp edges and burrs on the edge of the section and outer surface.

There shall be no rust spot, rust skin, oil stain, attachment, pore and abnormal fold on the surface of grouting corrugated steel pipe.

There are no porosity, crack, slag inclusion and spatter on the weld surface of corrugated steel pipe.

The incision was straight without obvious serration.

● **Structural specification table of grouted corrugated steel pipe for reinforcement anchorage**

Outer diameter of bellows	60		76					89			
Diameter of reinforcement/mm	12	14	16	18	20	22	25	28	32	36	40
wall thickness - t/mm	2										
wave height - a/mm	3										
length - L/mm	Not less than 24 times the diameter of reinforcement										
Distance between grouting hole and discharge hole and end - c/mm	50										
Ripple type	Type I (continuous arc)						Type II (arc plus straight line)				
Figure of ripple type											
Wave distance - p/mm	32						32				
Wave width - b/mm	-						20~32				
Ripple radius - r/mm	21						16~42				

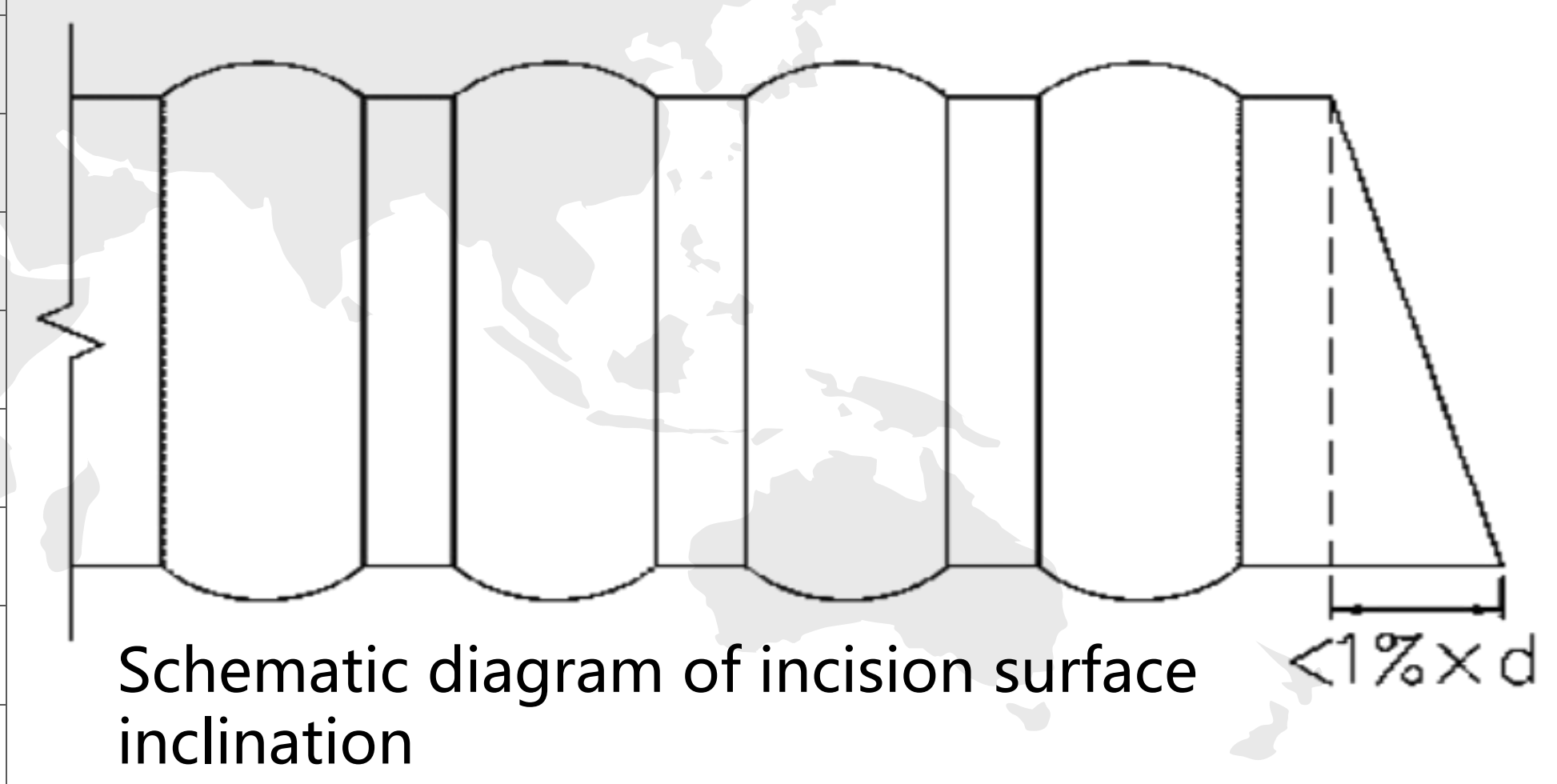
Note: the effective extension length of reinforcement in corrugated steel pipe shall not be less than 24 times of reinforcement diameter; The minimum difference between the minimum inner diameter of corrugated steel pipe and the diameter of connected reinforcement shall not be less than 35mm.

● **Dimensional deviation of grouted corrugated steel pipe for reinforcement anchorage**

Dimension deviation table of grouting corrugated steel pipe

Serial number	project	Dimension deviation
1	wall thickness - t/mm	±0.2
2	Wave distance - p/mm	±2.0
3	wave height - a/mm	±0.5
4	external diameter - D/mm	±3.0
5	internal diameter - d1/mm	±3.0
6	length - L/mm	±3.0
7	The incision surface is inclined 1/mm	< 1% × d

Note: see the figure on the right for the inclination index of reinforcement diameter notch surface.



Radial stiffness test: under the uniform load of 10kN, the radial deformation value of grouting corrugated steel pipe should be less than 0.08d, and no cracks or cracks appear.

● Scope of application of grouted corrugated steel pipe for reinforcement anchorage

Scope of application: the connection structure is commonly used for the connection between pier body and cap or between pier body and cap. Prefabricated pier body connects the steel bars protruding from pier body through grouting corrugated steel pipe embedded in cap or cap. Mortar cushion is often used on the contact surface between pier body and cap or cap, and epoxy adhesive joint is used between pier body segments.

The construction time of this structure is short, and the key point is to meet the sufficient anchorage length of longitudinal reinforcement. Its mechanical properties are similar to those of traditional cast-in-place concrete piers.

